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SP731-F Competition Control in Native Warm-season Grasses Grown for Livestock Forage in the Mid-South

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Introduction

Native grasses, such as big bluestem, indiangrass, little bluestem, switchgrass and eastern gamagrass, are increasingly grown to provide summer forage in the Mid-South. This publication provides guidance for controlling competition in pastures and hayfields dominated by these species. Additional information on using native warm-season grasses (NWSG) for forage production can be found in *Native Warm-season Grasses for Mid-South Forage Production* (SP 731-A). Additional information on weed management in pastures and hayfields can be found in *Weed Management in Pastures and Hay Crops* (PB 1801).

Good Grass Management

Native grasses planted for forage production in the Mid-South must compete with unwanted weeds and grasses. When that competition impacts stand vigor, quality, longevity or production, it should be controlled. Although some competition is inevitable, there are several steps you can take to minimize it. Establishing thick stands (about one plant per 1 to 2 square feet) that fully occupy the site is the first step. The next step is to maintain the vigor of your stand. Weaker, thinner stands allow room for weeds to become established and compete. All tall-growing grasses, including NWSG, need to maintain adequate residual height to ensure they have the energy reserves required for vigorous growth. Harvesting hay too frequently and grazing or haying too late in the summer can also reduce stand vigor. Finally, when fertilizing NWSG, apply only what they will use during a single growing season — none should be available following fall dormancy. Fertilization above these thresholds will lead to increased competition from a number of species that are less nutrient efficient. To learn more about these and other issues important to managing NWSG for forage production, see *Grazing Native Warm-season Grasses in the Mid-South* (SP 731-C) and Producing Hay from *Native Warm-season Grasses in the Mid-South* (SP 731-D).

A major issue when managing NWSG is encroachment of cool-season grasses (see sidebar, Weed Types). Most Mid-South farms have ample tall fescue and orchardgrass seed sources. If you weaken or overfertilize NWSG, these cool-season species will readily reestablish themselves in your NWSG stand. You should not attempt to manage perennial cool-season and warm-season grasses in the same stand; one of the two types will end up dominating the stand. However, any cool-season species, including broadleaf weeds, can have a serious impact on NWSG during April when they are initiating growth (Figure 1). This scenario is especially true if the competitor can form a canopy above the emerging NWSG.

Figure 1. Cool-season weeds, such as the volunteer white clover seen in the bluestem pasture above, can overtop and weaken native grasses early in the growing season. At that time, the native grasses are still small and are vulnerable to competition. It is important to control cool-season weeds in a timely manner. In this case, grazing, clipping or application of a broadleaf herbicide would all be effective options.

Proper management may not eliminate all competition in NWSG, but it should be your priority. Preventing weed problems will always be more cost-effective than dealing with them following poor management (Figure 2).

Established Grasses

After the seedling year, NWSG are established well enough to allow a wide range of competition control measures. An important exception occurs when you overseed an older stand; competition control then must be limited to what the seedlings will tolerate. Several tools can be used to control competition. We describe them under two categories: cultural practices and herbicides.

Cultural Practices

Grazing, haying, mowing and prescribed burning are all cultural practices used to manage competition in established NWSG. In many situations, use of one or more of these tools is more cost-effective than relying only on chemical approaches. Grazing can be used when the palatability of competing species exceeds that of NWSG. This scenario can occur during spring with some cool-season broadleaf weeds, such as prickly lettuce or volunteer clovers. Grazing can also be a valuable tool where annual grasses, such as crabgrass, are common or where johnsongrass is present in a NWSG planting. For low-growing species, such as common bermudagrass, which can easily become established in NWSG during the seedling year, grazing will not be a helpful control tool since cattle prefer to graze NWSG. In this case, allowing the taller growing NWSG to overtop the shade-intolerant bermudagrass by not grazing it would be the best choice.

Weed Types

Weeds may be of several types. Those that grow during the spring (late February through April) and fall (late September through November) are known as cool-season weeds. Those that grow during the summer (May through early September) are known as warm-season weeds. Weeds also may be annual (start from seed each spring), biennial (overwinter one year before going to seed and dying), or perennial (living for three or more years). Examples of each of these types of weeds can be found in Table 3.

These growth season and life cycles have implications for selecting the appropriate approach for treatment (see sidebar Spray Timing). You should also remember that any plant growing where it is unwanted can be considered a weed. Thus, forage-producing species, such as tall fescue or bermudagrass, should be considered weeds in a NWSG stand.

It may be possible to harvest the NWSG for hay as an alternative since this will allow less sun to reach the bermudagrass than would occur with the shorter canopies resulting from grazing. However, if the infestation is severe enough, foregoing any harvest would be preferable. Other unpalatable weeds, such as horsenettle, will not be controlled through grazing. When grazing is a good choice for competition control, you should stock heavily for short durations to maximize suppression of the target species.

Figure 2. A well-managed pasture, as seen with this mixed stand of big bluestem and indiangrass, can result in minimal weed pressure and excellent summer forage production.

Haying or mowing both can be used when tall-growing competitors or cool-season species early in the growing season threaten to overtop NWSG. If the material has good forage value, or you want to remove the thatch created by cutting, you should consider harvesting it for hay. Otherwise, a rotary mower can achieve the same effect. Mowing can also be useful in reducing seed production in certain weeds.

Prescribed burning has long been used in the Great Plains by stockmen to improve NWSG pastures. To be most effective, burns should be implemented in early spring (i.e., early April in the Mid-South). Fire at this time of year suppresses cool-season competition and stimulates growth of NWSG. Research in the Great Plains and Tennessee has suggested that burns during early spring improve NWSG cover whereas those conducted later in the year tend to favor growth of broadleaf species.

Herbicides

When used properly, herbicides provide a safe, flexible tool for a number of weed control problems. Many broadleaf weeds can be controlled during the growing season (see sidebar, Spray Timing) with a number of products (Table 1). Also, an application of paraquat is effective for controlling cool-season broadleaf weeds such as henbit, common chickweed, tall buttercup and Carolina geranium in late winter (February through March) in second-year stands. If early tillers are burned back by this method, they will regrow immediately and have less competition. This method also allows for successful inter-seeding into thin first-year stands. Controlling competing grasses can be more difficult. Cool-season grasses, such as tall fescue and orchardgrass, can be controlled by using a broad-spectrum herbicide, such as glyphosate, during the dormant season. However, both tall fescue and orchardgrass are more effectively controlled in fall (October through early November) than in the spring. Also, orchardgrass is more tolerant of glyphosate than is tall fescue and thus, can be more difficult to control. As mentioned above, johnsongrass can be suppressed by grazing but also may be controlled using imazapic-based products in bluestems or indiangrass or nicosulfuron-based products in switchgrass. There are no chemical options for controlling bermudagrass in NWSG. Good establishment and management are important in this regard. (Fields with considerable presence of bermudagrass are NOT good candidates for establishing NWSG.) Recommended herbicides, formulations and other information for controlling weeds in NWSG are listed in Table 1. Table 2 lists the harvest and grazing restrictions for these herbicides. Table 3 lists herbicide options for a number of weeds common to Mid-South pastures.

Spray Timing

Timing of herbicide applications is critical to achieve successful weed control. Most weeds are more effectively controlled when they are young and in early development stages. Cool-season annuals are normally an issue in late winter/early spring and need to be treated then, preferably before they flower. Cool-season perennials may be treated during the fall or spring. Warm-season annuals are best controlled during late spring or early summer. Warm-season perennials are best controlled during early summer (as seedlings) or late summer if they are older. In all cases, weeds should be actively growing and not under stress, such as during a period of drought.

Spot Spraying

Some weed problems may not occur across an entire pasture or hayfield, but still warrant control. In such cases, it is important to treat these small areas before the problem spreads and control is more difficult. Spot spraying, as opposed to broadcast applications, typically involves different rates for a given herbicide. Consult the product label or other resources (*Weed Management in Pastures and Hay Crops*, PB 1801) to determine the correct application rate for spot spraying.

Seedling Stands

During the establishment year, NWSG seedlings are quite vulnerable to competition. Seedlings are relatively small and emphasize root growth over shoot growth. Thus, any species that forms a canopy over the developing seedlings (copperleaf, prickly lettuce, pigweeds) can potentially cause a stand failure (Figure 3). Furthermore,

Figure 3. Weed pressure during the establishment year can lead to weakening or loss of seedlings. The first year big bluestem pasture shown above had to be partially reseeded where the copperleaf was thick and overtopped the seedlings.

tolerance to several herbicides that can be used on mature stands is absent or greatly reduced in seedlings. Therefore, close monitoring of seedling stands is critical to ensure that you are able to take timely action if weeds threaten to overtop the NWSG seedlings. All of these issues underscore the importance of advance weed control as you prepare to establish NWSG. For more information on proper establishment of NWSG, see *Establishing Native Warm-Season Grasses for Livestock Forage in the Mid-South* (SP 731-B).

Cultural Practices

All of the cultural tools that can be used on established NWSG — grazing, haying, mowing and prescribed burning — also can be used in seedling stands. However, because burning is recommended during early April in NWSG, it does not have a role in the seedling year except to prepare the site for planting. In that situation, burning can play an important role in first-year NWSG stands. By mid- to late August, efforts to control competition that cause any stress to seedlings should be avoided. At this point, virtually all growth has ceased and it is more advantageous to allow the seedlings to store as much energy as possible for fall dormancy.

Extra care needs to be taken when using grazing to reduce competition in seedling stands because small seedlings can be damaged easily by grazing and trampling. Therefore, grazing should be used (preferably) once seedlings have developed adventitious roots, or at about the four-leaf stage or older. Also, be sure the weeds to be suppressed by grazing are more palatable or are far enough above the seedlings that grazing of the NWSG seedlings is unlikely. Heavy stocking for short periods ("flash grazing") is the best approach because it will minimize potential damage to seedlings. Always monitor grazing in seedling stands closely and be prepared to pull the animals off if damage appears to be occurring to the seedlings.

Haying and mowing can be effective in reducing competition in seedling stands. In fact, because of the limited options for grass control with herbicides and the sensitivity of smaller seedlings to most broadleaf herbicides, mowing could be the best weed control tool during the establishment year. If seedlings have reached the four-leaf stage, tedding or raking hay should not damage them. Smaller seedlings may be more susceptible to injury though. In that case, a rotary mower is a better option. If you use a rotary mower, it is important not to allow the weed canopy to become so well developed that a large amount of thatch is left behind after mowing. Such thatch can easily smother seedling NWSG. Whether taking the hay off a field or simply mowing it, always take care to mow above the seedlings. If competition is particularly intense, and seedlings have become large (i.e., >18 inches tall), mowing that removes a portion of the seedlings' leaves is acceptable.

Herbicides

As with established stands, broadleaf weeds are easier to control than grass weeds. The key difficulty in using herbicides that control broadleaf weeds in first-year NWSG stands is that seedlings are intolerant of some chemicals and only become tolerant to others once they are well-established as evidenced by development of secondary or adventitious roots, something that has typically occurred by the time they have reached the four- or five-leaf stage. Tillering is also good evidence that the seedlings are well-established. Few herbicides are available for grass control in NWSG stands though. In the case of big and little bluestem and indiangrass, impazapic formulations can be very effective. Recommended herbicides, formulations and other information for spraying weeds in seedling NWSG are listed in Table 1. Also, consult Table 2 for harvest and grazing restrictions for these herbicides. However, since forage production in seedling stands does not occur, these restrictions may only apply in the case of incidental forage harvests (haying or grazing) used for weed control. Table 3 lists herbicide options for a number of weeds common to Mid-South pastures.

Herbicide Stewardship

Although modern herbicides are quite safe when used according to the label instructions, care should nevertheless be used when applying these products. Read and be familiar with all label instructions before applying any herbicides. Follow all label instructions when applying herbicides. Accurate weed identification and proper timing and application rates are all essential to effectively control weeds with herbicides. Also, do not rely on just one herbicide over a period of years for weed control as some weeds may develop resistance to that herbicide. Instead utilize best management cultural practices along with more than one herbicide over a period of years for the most consistent long-term weed control.

Table 1. Herbicides for use on native warm-season grass pastures and hayfields. Check product labels to determine appropriate application rate for your particular circumstances. Application rates will vary depending on stage of plant maturity, degree of competition, and the stage of your NWSG development.

NWSG species	Safe for seedlings?	Trade name	Active ingredient	Application	Reseeding interval	Adjuvant	Comments
All	Established stands only, dormant	Gramoxone Inteon, Gramaxone SL	paraquat (2.0 lb/gal ai)	Postemergence	None	Nonionic surfactant (NIS) or crop oil concentrate.	Use to control annual weeds when established NWSG are dormant.
All	Established stands only, dormant	Roundup Weathermax and others	glyphosate (5.5 lb/gal ai)	Postemergence	None	Check individual formulations.	Use to control annual and perennial weeds, including cool-season grasses such as tall fescue and orchardgrass, when NWSG are dormant.
All	Established stands only, dormant	Cornerstone Plus, RangerPro, other generic glyphosate	glyphosate (4.0 lb/gal ai)	Postemergence	None	Check individual formulations.	Use to control annual and perennial weeds, including cool-season grasses such as tall fescue and orchardgrass, when NWSG are dormant.
All	>4-leaf stage only	2,4-D Amine 4	2,4-D (3.8 lb/ gal ai)	Postemergence	2 weeks per pint applied for grasses	NIS	Use to control broadleaf weeds during first year after seedlings are well-established* or in stands 2 years old or older. Less volatile than ester 2,4-D.
All	>4-leaf stage only	2,4-D Ester 4EC	2,4-D (3.8 lb/ gal ai)	Postemergence	2 weeks per pint applied for grasses	NIS	Use to control broadleaf weeds during first year after seedlings are well-established or in stands 2 years old or older. More volatile than amine 2,4-D.
All	>4 leaf stage only	Weedmaster, Brash, or Range Star	dicamba (1 lb/ gal ai) + 2,4-D amine (2.9 lb/ gal ai)	Postemergence	10 days per pint plant back interval for grasses	NIS only	Use to control broadleaf weeds during first year after seedlings are well-established or in stands 2 years old or older. Generally more effective than 2,4-D alone.
All	well-established** seedlings only	Milestone	aminopyralid (2.0 lb/gal ai)	Postemergence with residual preemergence activity	up to 4 months for grasses	NIS	Use to control broadleaf weeds during first year after seedlings are well-established or in stands 2 years old or older. Legumes may require 1 year or more before planting on treated sites.
All	well-established seedlings only	ForeFront R&P, GrazonNext	aminopyralid (0.3 lb/gal ai) + 2,4-D (2.7 lb/gal ai)	Postemergence with residual reemergence activity	up to 4 months for grasses	NIS	Use to control broadleaf weeds during first year after seedlings are well-established or in stands 2 years old or older. Legumes may require 1 year or more before planting on treated sites.

Table 1. continued

All	well-established seedlings only	GrazonNext HL	aminopyralid (0.41 lb/gal ai) + 2,4-D (3.33 lb/gal ai)	Postemergence with residual reemergence activity	up to 4 months for grasses	NIS	Use to control broadleaf weeds during first year after seedlings are well-established or in stands 2 years old or older. Legumes may require 1 year or more before planting on treated sites.
All	Post-tillering only	Grazon P+D	picloram (0.5 lb/gal ai) + 2,4-D (2.0 lb/gal ai)	Postemergence	up to 60 days for grasses	NIS only	Restricted use pesticide. Use for broadleaf weed control during first year after seedlings are well-established or in stands 2 years old or older.
All	> 4 leaf stage only	Surmount	picloram (1.2 lb/gal ai) + fluroxypyr (1.0 lb/gal ai)	Postemergence	3 weeks for grasses, up to 12 months for legumes	NIS	Restricted use pesticide. Use for woody brush and broadleaf weed control during first year after seedlings are well-established or in stands 2 years old or older.
All	Post-tillering only	Remedy Ultra	triclopyr (4 lb/gal ai)	Postemergence	3 weeks for grasses	NIS or crop oil concentrate	Use for woody brush control during first year after seedlings are well-established or in stands 2 years old or older. Also useful for broadleaf weed control.
All	Post-tillering only	PastureGard	triclopyr (1.5 lb/gal) + fluroxypyr (0.5 lb/gal)	Postemergence	3 weeks for grasses	NIS	Use for woody brush control during first year after seedlings are well-established or in stands 2 years old or older. Also useful for broadleaf weed control.
BB, LB, IG, SG***	Established (second year stands) only	Cimarron Plus	metsulfuron (48% by weight) + chlorsulfuron (15% by weight)	Postemergence or preplant	7 days for grasses	NIS or crop oil concentrate	Use to control broadleaf weeds in NWSG stands 2 years old or older.
BB, IG, LB, EG	Established stands only	Journey	imazapic (0.75 lb/gal) + glyphosate (1.5 lb/gal)	Preplant and postemergence	Except for switchgrass, none for NWSG	NIS or methylated seed oil	Provides control of a number of broadleaf and grass competitors including crabgrass, foxtail, johnsongrass, fall panicgrass, broadleaf signalgrass.
BB, IG, LB, EG	> 4 leaf stage only	Plateau, Panoramic 2SL	imazapic (2.0 lb/gal)	Preplant and postemergence	Except for switchgrass, none for NWSG	NIS or methylated seed oil	Provides control of a number of broadleaf and grass competitors including crabgrass, foxtail, johnsongrass, fall panicgrass, broadleaf signalgrass.

*The term "well-established" is often used on product labels by the manufacturer. It typically refers to seedlings that have developed secondary or adventitious roots, something that normally occurs by the time they have reached the four- or five-leaf stage. Tillering will occur in seedlings after his stage and is another indication of well-established seedlings. Use of herbicides on seedling stands may result in injury or loss of the stand if seedlings are not well-established. Follow label guidelines carefully when spraying seedling stands.

**All seedling size descriptions in this column are based on terms used in the product label. Use of herbicides on seedling stands may result in injury or loss of the stand if seedlings do not meet the stated criteria for development. Follow label guidelines carefully when spraying seedling stands.

***BB = big bluestem, LB = little bluestem, IG = indiangrass, SG = switchgrass, EG = eastern gamagrass.

Table 2. Grazing, haying, and slaughter restrictions for herbicides used for weed control in native warm-season grass pastures and hayfields.

	Beef cattle, non-lactating dairy, other livestock				Lactating dairy cattle			
Trade Name	**Grazing**	**Hay harvest**	**Slaughter**		**Grazing**	**Hay harvest**	**Slaughter**	**Comments**
Gramoxone SL	None listed	None listed	None listed		None listed	None listed	None listed	
Roundup and others	None in established pastures	None in established pastures	None in established pastures		None in established pastures	None in established pastures	None in established pastures	
2,4-D Amine 4	None listed	30 days	3 days		7 days	30 days	3 days	
2,4-D Ester 4EC	None listed	30 days	3 days		7 days	30 days	3 days	
Weedmaster, Brash or Range Star	None listed	37 days	30 days		7 days	37 days	30 days	
Milestone	None	None	None		None	None	None	Graze at least 3 days on non-treated pasture before moving onto areas with sensitive broadleaf crops due to transfer through urine and/or manure.
ForeFront R&P, GrazonNext, GrazonNext HL	None	7 days	None		None	7 days	None	Graze at least 3 days on non-treated pasture before moving onto areas with sensitive broadleaf crops due to transfer through urine and/or manure.
Grazon P+D	None	30 days	3 days		7 days	30 days	3 days	
Surmount	None	None	3 days		14 days	14 days	3 days	Remove animals from treated hay or pasture 3 days prior to slaughter.
Remedy Ultra	None	14 days	3 days		Following growing season	14 days	3 days	Remove animals from treated hay or pasture 3 days prior to slaughter.
PastureGard	None	14 days	3 days		Following growing season	14 days	3 days	Remove animals from treated hay or pasture 3 days prior to slaughter.
Cimarron Plus	None	None	None		None	None	None	
Journey	None	14 days	None		None	14 days	None	
Plateau, Panoramic 2SL	None	14 days	None		None	14 days	None	

Table 3. Common pasture weeds and herbicides available for control.

Weed	**More Control***	**Less Control**	**Growth season**	**Lifecycle**
Common chickweed	Cimarron Plus	Weedmaster (or Brash or Range Star), Plateau	Cool-season	Annual
Horseweed	2,4-D Amine; 2,4-D Ester; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL		Cool-season	Annual
Prickly lettuce	2,4-D Ester; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL	2,4-D Amine	Cool-season	Annual
Sowthistle	2,4-D Amine; 2,4-D Ester; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P, GrazonNext HL		Cool-season	Annual
Henbit	Weedmaster (or Brash or Range Star), Cimarron Plus	Plateau	Cool-season	Annual
Bull thistle	2,4-D Amine; 2,4-D Ester; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Plateau	Cimarron Plus	Cool-season	Biennial
Carolina geranium	ForeFront R&P, GrazonNext HL, Milestone, Cimarron Plus, Plateau	Weedmaster (or Brash or Range Star)	Cool-season	Biennial
Musk thistle	2,4-D Amine; 2,4-D Ester; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL	Cimarron Plus, Plateau	Cool-season	Biennial
Broadleaf plantain	2,4-D Amine; 2,4-D Ester; Weedmaster (or Brash or Range Star); ForeFront R&P; GrazonNext HL; Cimarron Plus		Cool-season	Perennial
Buckhorn plantain	2,4-D Ester; Weedmaster (or Brash or Range Star); ForeFront R&P; GrazonNext HL	Cimarron Plus	Cool-season	Perennial
Buttercups	2,4-D Amine; 2,4-D Ester; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus; Plateau		Cool-season	Perennial
Curly dock	ForeFront R&P, GrazonNext HL, Milestone, Weedmaster (or Brash or Range Star), Cimarron Plus	Plateau	Cool-season	Perennial
Dandelion	2,4-D Amine; 2,4-D Ester; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus; Plateau		Cool-season	Perennial
Oxeye Daisy	ForeFront R&P; GrazonNext HL; Milestone; Weedmaster (or Brash or Range Star)	2,4-D Ester; 2,4-D Ammine	Cool-season	Perennial
Red sorrel	Weedmaster (or Brash or Range Star)		Cool-season	Perennial
Bitter sneezeweed	2,4-D Amine; Weedmaster; Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus		Warm-season	Annual
Common cocklebur	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus	Plateau	Warm-season	Annual

Table 3. continued

Common lambsquarters	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus	Plateau	Warm-season	Annual
Cudweed	ForeFront R&P, Milestone	Weedmaster (or Brash or Range Star)	Warm-season	Annual
Jimsonweed	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL	Plateau	Warm-season	Annual
Pigweeds	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus	Plateau	Warm-season	Annual
Prickly sida	ForeFront R&P, GrazonNext HL, Milestone	Weedmaster (or Brash or Range Star); 2,4-D Amine; Plateau	Warm-season	Annual
Purple (perilla) mint	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL		Warm-season	Annual
Ragweeds	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL	Plateau	Warm-season	Annual
Smartweed	Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus; Plateau	2,4-D Amine	Warm-season	Annual
Spiny amaranth	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL		Warm-season	Annual
Sumpweed	2,4-D Amine; Weedmaster (or Brash or Range Star)		Warm-season	Annual
Wild carrot	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL; Cimarron Plus; Plateau		Warm-season	Biennial
Brambles	PastureGard, Remedy Ultra, Cimarron Plus	Weedmaster (or Brash or Range Star)	Warm-season	Perennial
Chicory	Weedmaster (or Brash or Range Star), Cimarron Plus		Warm-season	Perennial
Dogfennel	ForeFront R&P, GrazonNext HL, Weedmaster (or Brash or Range Star), Cimarron Plus		Warm-season	Perennial
Goldenrod	Weedmaster (or Brash or Range Star), Cimarron Plus	ForeFront R&P, GrazonNext HL	Warm-season	Perennial
Horsenettle	ForeFront R&P, GrazonNext HL, Milestone		Warm-season	Perennial
Maypop passionflower		ForeFront R&P	Warm-season	Perennial
Milkweed		Weedmaster (or Brash or Range Star)	Warm-season	Perennial
Pokeweed	ForeFront R&P, GrazonNext HL, Milestone	Weedmaster (or Brash or Range Star); 2,4-D Amine	Warm-season	Perennial
Prickly pear			Warm-season	Perennial

Table 3. continued

Tall ironweed	Weedmaster (or Brash or Range Star), Milestone, ForeFront R&P, GrazonNext HL	2,4-D Amine	Warm-season	Perennial
Trumpetcreeper	Remedy Ultra	None	Warm-season	Perennial
White heath aster	Weedmaster (or Brash or Range Star)	2,4-D Amine	Warm-season	Perennial
White snakeroot	ForeFront R&P, GrazonNext HL, Milestone, Weedmaster (or Brash or Range Star)	2,4-D Amine	Warm-season	Perennial
Wild garlic	Plateau	2,4-D Amine; ForeFront R&P; GrazonNext HL; Weedmaster (or Brash or Range Star); Milestone; Cimarron Plus	Warm-season	Perennial
Wingstem	2,4-D Amine; Weedmaster (or Brash or Range Star); Milestone; ForeFront R&P; GrazonNext HL		Warm-season	Perennial

*The terms, "More control" and "Less control" in this table are generally based on weed ratings found in *Weed Management in Pastures and Hay Crops*, PB 1801. More control corresponds to ratings of 7 or greater; less control corresponds to rating of 4-6.

This publication contains herbicide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the herbicide applicator's responsibility, by law, to read and follow all current label directions for the specific herbicide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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